



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,470

06/01/2006

Thomas Lerche

WUE-58

3887

7590
Thomas J. Burger
Wood Herron & Evans
2700 Carew Tower
441 Vine Street
Cincinnati, OH 45202-2917

03/18/2008

EXAMINER

OREILLY, PATRICK F

ART UNIT

PAPER NUMBER

3749

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,470	Applicant(s) LERCHE, THOMAS	
	Examiner Patrick F. O'Reilly III	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5 and 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/1/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on June 1, 2006 is acknowledged. The submission is in compliance with the provisions of 37 C.F.R. § 1.97 and 37 CFR § 1.98 and, therefore, the references therein have been considered.

Drawings

3. The drawings are objected to because the lineweights employed in the sole figure are not uniform and, therefore, do not satisfy the requirements of 37 CFR 1.84(l).

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

Art Unit: 3749

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of **50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure **sufficiently** to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because (a) it does not describe the disclosure sufficiently using a minimum of 50 words, and (b) the word "(Figure)", which is included at the end of the abstract, is superfluous and therefore, should be deleted. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities:

The specification fails to include any section headings, such as: "Background of the Invention", "Brief Summary of the Invention", "Brief Description of the Drawing(s)", and "Detailed Description of the Invention".

On page 5 of the specification, in lines 12-13, the clause, “If the temperature measured by the sensor is eg. 25°,...”, should be corrected to read: “If the temperature measured by the sensor is eg. 25°C,...”.

On page 5 of the specification, in line 15, the range “10°C to 30°C” should be corrected to read: “10° to 30°”. This range is being described with respect to an angle (α), not a temperature.

On page 5 of the specification, in line 17, the range “45°C to 60°C” should be corrected to read: “45° to 60°”. This range is being described with respect to an angle (α), not a temperature.

On page 5 of the specification, in line 18, the numerical value “90°C” should be corrected to read: “90°”. This numerical value is being described with respect to an angle (α), not a temperature.

On page 5 of the specification, in line 19, the range “75°C to 90°C” should be corrected to read: “75° to 90°”. This range is being described with respect to an angle (α), not a temperature.

Appropriate correction is required.

Claim Notes

8. The language used in claim 12 of this application appears to invoke the sixth paragraph of 35 U.S.C. 112. According to the Manual of Patent Examining Procedure, “a claim limitation will be interpreted to invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis: (A) the claim limitations must use the phrase ‘means for’ or ‘step for’; (B) the ‘means for’ or ‘step for’ must be modified by functional language; and (C) the phrase ‘means for’ or ‘step for’ must not be modified by sufficient structure, material or acts for achieving the specified function.” See MPEP § 2181(I). In this application, claim 12 contains the phrase “means for” in lines 1 and 2 of the claim. Moreover, the phrase “means for” is modified by

Art Unit: 3749

functional language in each occurrence. Furthermore, claim 12 satisfies the third prong of this analysis because neither of the “means for” clauses contains sufficient structural components for achieving the specified functions. Therefore, because claim 12 satisfies all three prongs of the analysis, this claim shall be treated under 35 U.S.C. 112, sixth paragraph.

9. In claim 12, the phrase “for air-conditioning aircraft cabins” is being treated as a recitation of intended use for the purpose of an examination on the merits. It is a well known principle of patent law that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the language of the claim. In this case, the prior art devices of the JP ‘947 reference and Holyoake, which are explained in detail below, are both capable of being used for the air-conditioning of aircraft cabins.

Claim Objections

10. Claims 11 and 12 are objected to because of the following informalities: the claims do not contain a recognized transition that permits the determination of whether each claim is intended to be inclusive of additional elements or alternatively, exclusive of additional elements. Each of these claims should be rewritten with either an open-type transition, such as “comprising” or “including”, or a closed-type transition, such as “consisting of”. For the purpose of an examination on the merits, the examiner has considered claims 11 and 12 to be inclusive of additional elements (open-type transitions presumed). Appropriate correction is required.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 7-8 and 12** are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. JP 62142947 A (“JP ‘947”). The specification and the drawings in the JP ‘947 reference disclose all of the elements recited in **claims 7-8 and 12** of this application.

13. Specifically, in regard to claim 12, the JP ‘947 reference discloses all of the claimed elements, including: a means (fan blow-off port with rotatable louvers 8 disposed therein) for generating and directing at least one air jet (depicted by the airflow arrows in Fig. 1), a means (shape memory alloy element) for detecting the air jet temperature and a means (rotatable louvers 8) to alter the direction and the impulse of the air jet (shown by the airflow arrows in Fig. 1) dependent upon the air jet temperature measured (the shape memory alloy element senses the temperature of the air jet and alters the rotation of the louvers accordingly). Refer to JP ‘947, Figure 1; also refer to attached English abstract for JP ‘947. Therefore, because all of the elements in claim 12 of this application are disclosed by the JP ‘947 reference, this claim is rejected in accordance with 35 U.S.C. 102(b).

14. In regard to claim 7, the JP ‘947 reference further discloses that the means (rotatable louvers 8) for altering the direction and/or the impulse of the air jet (shown by the airflow arrows in Fig. 1) have a component (shape memory alloy element) with a temperature- dependent form.

See JP '947, Figure 1; also see attached English abstract for JP '947. Thus, JP '947 meets the language of this claim.

15. In regard to claim 8, the JP '947 reference further discloses that the component is a shape memory alloy element. Refer to attached English abstract for JP '947. Consequently, the JP '947 reference also meets the language set forth in claim 8.

16. **Claims 7, 9-10, and 12** are rejected under 35 U.S.C. 102(b) as being anticipated by Holyoake (US 5,556,335). The specification and the drawings in the Holyoake reference disclose all of the elements recited in **claims 7, 9-10, and 12** of this application.

17. Specifically, in regard to claim 12, the Holyoake reference discloses all of the claimed elements, including: a means (divergent air outlet 3 with moveable deflector plate 5 disposed therein) for generating and directing at least one air jet (through annular opening 20), a means (bimetallic coils 9) for detecting the air jet temperature and a means (moveable deflector plate 5) to alter the direction (between downward flow and lateral flow) and the impulse of the air jet (the airflow speed of the air jet also changes when the deflector plate 5 is raised and lowered because the cross-sectional area of the annular opening 20 is varied) dependent upon the air jet temperature measured (the bimetallic coils 9 sense the temperature of the air jet and alter the position of the deflector plate 5 accordingly). Refer to Holyoake, Figure 1; column 1, lines 17-20; column 5, lines 29-67; and column 6, lines 1-38. Therefore, because all of the elements in claim 12 of this application are disclosed by the Holyoake reference, this claim is rejected in accordance with 35 U.S.C. 102(b).

18. In regard to claim 7, Holyoake further discloses that the means (moveable deflector plate 5) for altering the direction and/or the impulse of the air jet (through annular opening 20)

have a component (bimetallic coils 9) with a temperature- dependent form. See Holyoake, Figure 1; column 5, lines 46-54. Thus, Holyoake meets the language of this claim.

19. In regard to claim 9, Holyoake further discloses that the component (9) is a bi-metallic element. Refer to Holyoake, Figure 1; column 5, lines 46-54. Consequently, the Holyoake reference also meets the language set forth in claim 9.

20. In regard to claim 10, Holyoake further discloses that the means (bimetallic coils 9) for measuring the temperature are positioned in such a way that they measure the temperature of the air jet (the bimetallic coils 9 are disposed within outlet cone 3 so that the incoming airstream originating from the interior of the circular duct connector 2 impinges upon the bimetallic coils 9 prior to being discharged through the annular opening 20 of the diffuser). See Holyoake, Figure 1. Therefore, Holyoake also meets the language set forth in this claim.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. **Claims 2-3 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (US 4,320,696) in view of Smith et al. (US 6,176,777). These two references, when considered together, teach all of the elements recited in **claims 2-3 and 11** of this application.

Art Unit: 3749

23. In particular, claims 2 and 11 of this application are obvious when Daniels et al. is viewed in light of Smith et al. Daniels et al. discloses the invention substantially as claimed, including: a method for air-conditioning of aircraft cabins (see col. 3, ln. 50-58), wherein, by means of at least one blower (air outlet pipe 1 with outlet funnel 1b), at least one air jet (depicted by the airflow arrows in Figs. 1a-1c) is directed into the aircraft cabin (col. 3, ln. 50-58), wherein the direction (as shown by arrows in Figs. 1a-1c for varying ball 5 positions) and the impulse of the air jet are altered (the airflow speed of the air jet also changes when the ball 5 is raised and lowered because the cross-sectional area of the middle opening 2a is varied) dependent upon a measured temperature (a servo-motor, which drives the ball 5, is controlled by its own thermostat). Refer to Daniels et al., Figures 1a-1c; column 3, lines 50-58; column 5, lines 60-68; and column 6, lines 22-41 and 61-68.

However, claims 2 and 11 of this application further disclose that (claim 2) the temperature of the air jet is measured, and (claim 11) the direction and the impulse of the air jet are altered dependent upon the measured air jet temperature. As described above, Daniels et al. discloses altering the direction and the impulse of the air jet based upon a measured temperature, but does not explicitly disclose that the measured temperature is the air jet temperature.

Smith et al., although, teaches a self-modulating diffuser for air conditioning systems that includes a sensor means for measuring the duct supply air temperature and a control means that alters the direction and the impulse (speed) of the discharged air in response to the measured supply air temperature by modulating the position of an inner dampening cone for the purpose of enabling the diffuser to respond to changes in the duct supply air temperature so that an automatic heating/cooling changeover control sequence can be implemented. See Smith et al.,

Figures 1a and 1b; column 1, lines 58-61; and column 2, lines 33-38. Therefore, when Daniels et al. is viewed in light of Smith et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the air-conditioning method of Daniels et al. by additionally measuring the air jet temperature and altering the direction and the impulse of the air jet based upon the measurement thereof, as taught by Smith et al., in order to enable the diffuser to respond to changes in the duct supply air temperature so that an automatic heating/cooling changeover control sequence can be implemented. See Smith et al., column 1, lines 58-61; and column 2, lines 33-38.

24. In regard to claim 3, Daniels et al. further discloses that the air jet (depicted by the airflow arrows in Figs. 1a-1c) is directed into the cabin (see col. 3, ln. 50-58) from the ceiling area (air outlet pipe 1 with funnel 1b is a ceiling air outlet). Refer to Daniels et al., Figures 1a-1c; column 3, lines 50-58 and column 6, lines 6-8. Therefore, Daniels et al. in view of Smith et al. also meets the language of this claim.

25. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (US 4,320,696) in view of Smith et al. (US 6,176,777) as applied to claim 11 above, and further in view of Meurer (US 5,476,419). These three references, when considered together, teach all of the elements recited in **claim 4** of this application.

26. In particular, claim 4 of this application is obvious when Daniels et al. is viewed in light of Smith et al., and further viewed in light of Meurer. As described above, Daniels et al., as modified by Smith et al., discloses all the elements of base claim 11, the claim upon which this claim depends. However, claim 4 of this application further discloses that, as the temperature of the air jet rises, its angle with the vertical is made smaller. Daniels et al., as modified by Smith

Art Unit: 3749

et al., teaches that a vertical blowing position is normally used for heating air (Daniels et al., col. 6, ln. 40-41), but does not explicitly provide that the angle of the air jet with respect to the vertical is made smaller as the air jet temperature rises. Meurer, although, teaches a thermally actuated heating/cooling diffuser that includes movable deflector blades controlled by a coiled bimetallic strip in the duct airstream, wherein when heating air is being forced downwardly through the diffuser apparatus, the angle of the diffuser air jet is made smaller with respect to the vertical (“heating position” 26a – Fig. 1) for the purpose of forcing the buoyant, heated air to the lower strata of the conditioned space so that it reaches the occupied zone. Refer to Meurer, Figures 1-2; column 1, lines 42-50; column 2, lines 62-66; and column 4, lines 2-9. Therefore, when Daniels et al. is viewed in light of Smith et al., and further viewed in light of Meurer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the air-conditioning method of Daniels et al. in view of Smith et al. by additionally decreasing the angle of the air jet with respect to the vertical as the air jet temperature rises, as taught by Meurer, in order to force the buoyant, heated air to the lower strata of the conditioned space so that it reaches the occupied zone. See Meurer, column 1, lines 42-50.

27. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (US 4,320,696) in view of Smith et al. (US 6,176,777) as applied to claim 11 above, and further in view of de Villiers et al. (US 5,647,532). These three references, when considered together, teach all of the elements recited in **claim 5** of this application.

28. In particular, claim 5 of this application is obvious when Daniels et al. is viewed in light of Smith et al., and further viewed in light of de Villiers et al. As described above, Daniels et al.,

Art Unit: 3749

as modified by Smith et al., discloses all the elements of base claim 11, the claim upon which this claim depends. However, claim 5 of this application further discloses that, as the temperature of the air jet rises, its impulse is increased. Daniels et al., as modified by Smith et al., does not contain this additional limitation. The de Villiers et al. reference, although, teaches a thermally actuated air diffuser that includes a movable baffle (106) controlled by a thermally sensitive element (22) in the duct (D) airstream, wherein when heated air flows in the ducting (D), the baffle (106) descends to the fully open position of the diffuser so as to deliver the maximum amount of heated into the space for the purpose of raising the temperature in the occupied space as quick as possible, especially when the occupied space is significantly below the desired temperature setpoint. Refer to de Villiers et al., Figures 1-2; column 5, lines 9-10 and 49-63. Therefore, when Daniels et al. is viewed in light of Smith et al., and further viewed in light of de Villiers et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the air-conditioning method of Daniels et al. in view of Smith et al. by additionally increasing the impulse of the air jet as the air jet temperature rises, as taught by de Villiers et al., in order to raise the temperature in the occupied space as quick as possible, especially when the occupied space is significantly below the desired temperature setpoint. See de Villiers et al., column 5, lines 59-63.

Conclusion

29. See attached form PTO-892 for additional pertinent prior art, which was not directly relied upon in this action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick F. O'Reilly III whose telephone number is (571) 272-3424. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. O'Reilly III/
Examiner, Art Unit 3749

/Steven B. McAllister/
Supervisory Patent Examiner, Art Unit 3749